EP 0 794 674 A2 - 09-10-1997

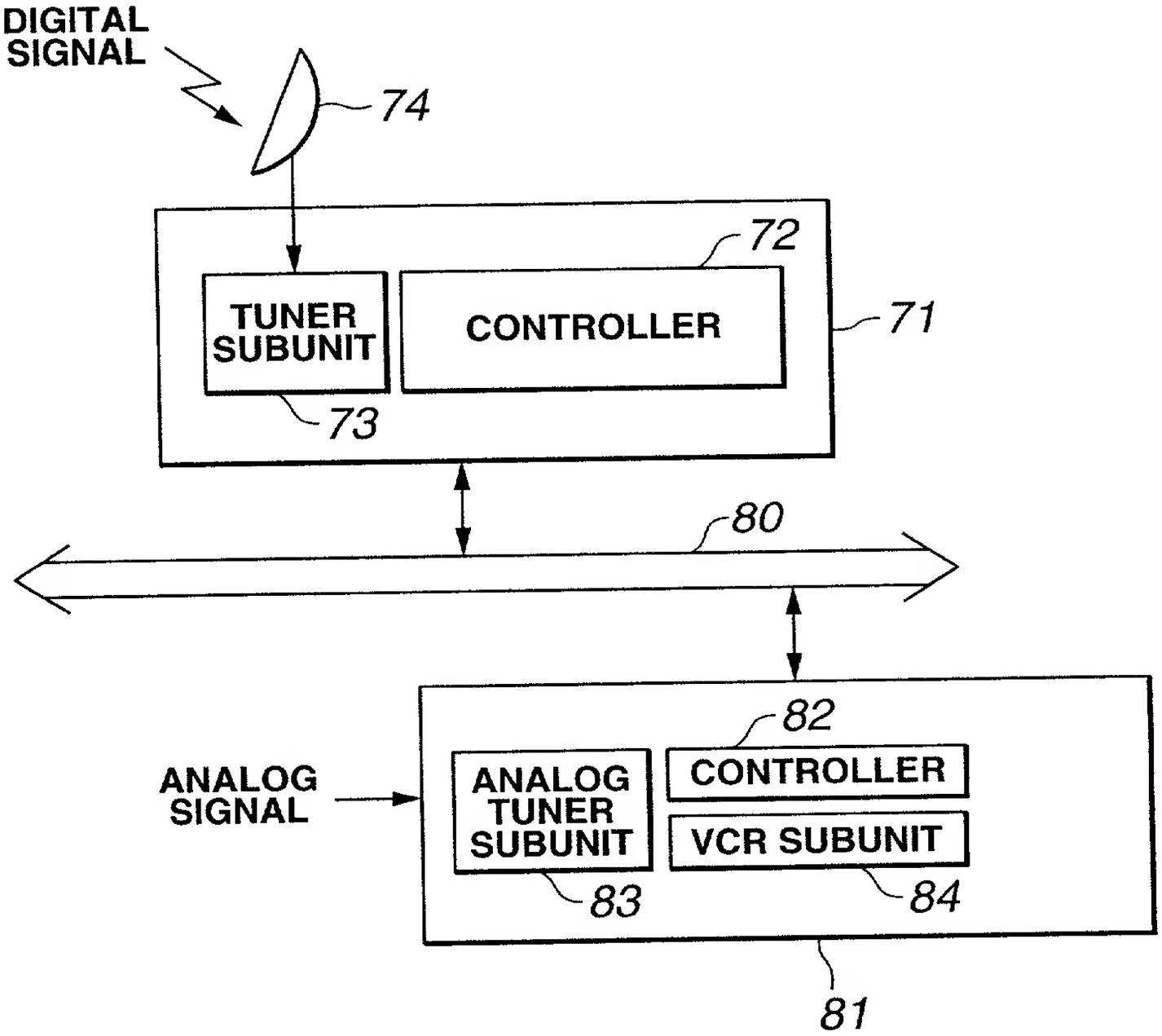

FIG.1

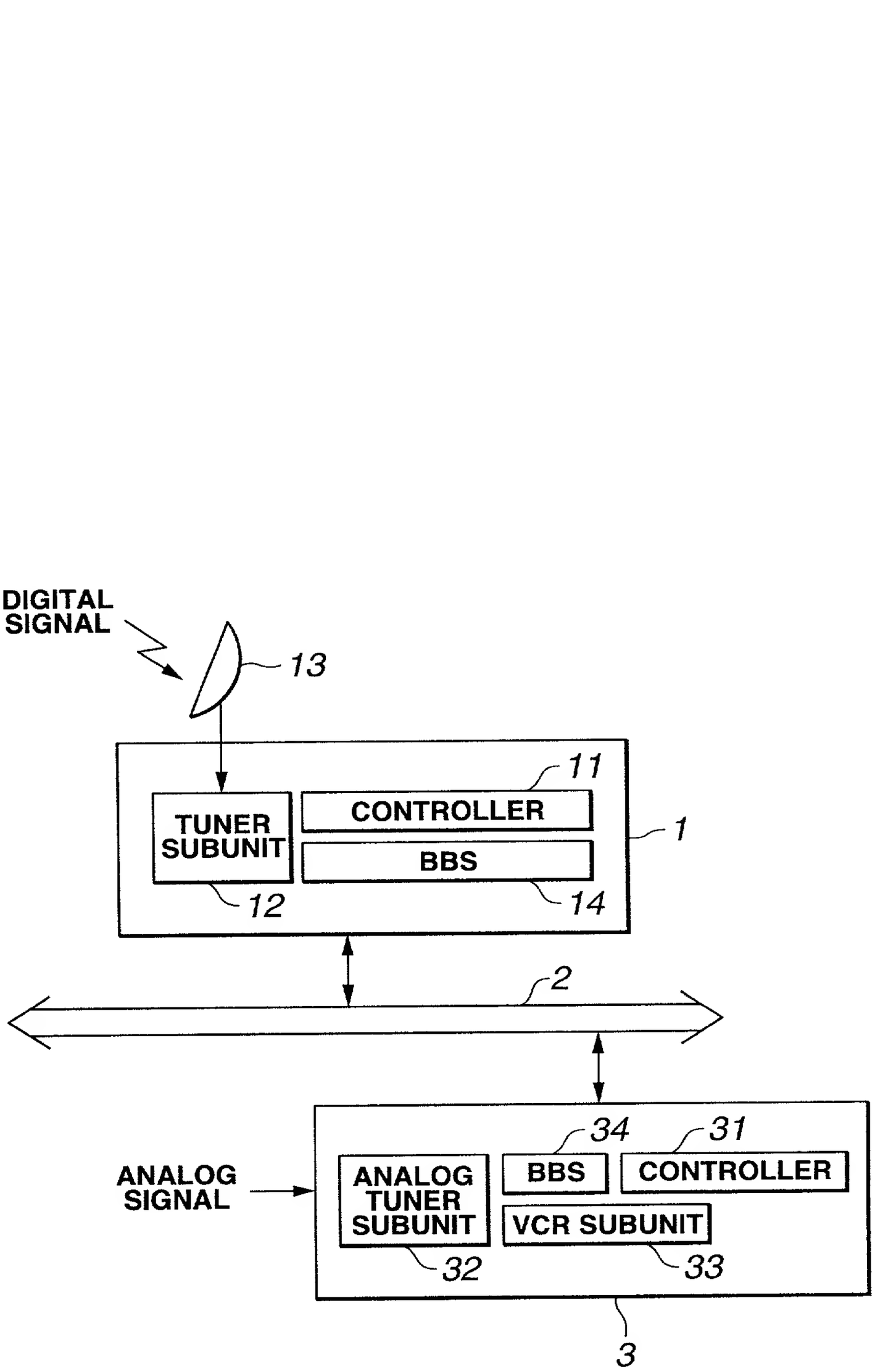
DIGITAL
SIGNAL
13
11
CONTROLLER
TUNER
SUBUNIT
BBS
1
12
14
2
34
31
ANALOG
SIGNAL
ANALOG
TUNER
SUBUNIT
BBS
CONTROLLER
VCR SUBUNIT
32
33
3

FIG.2

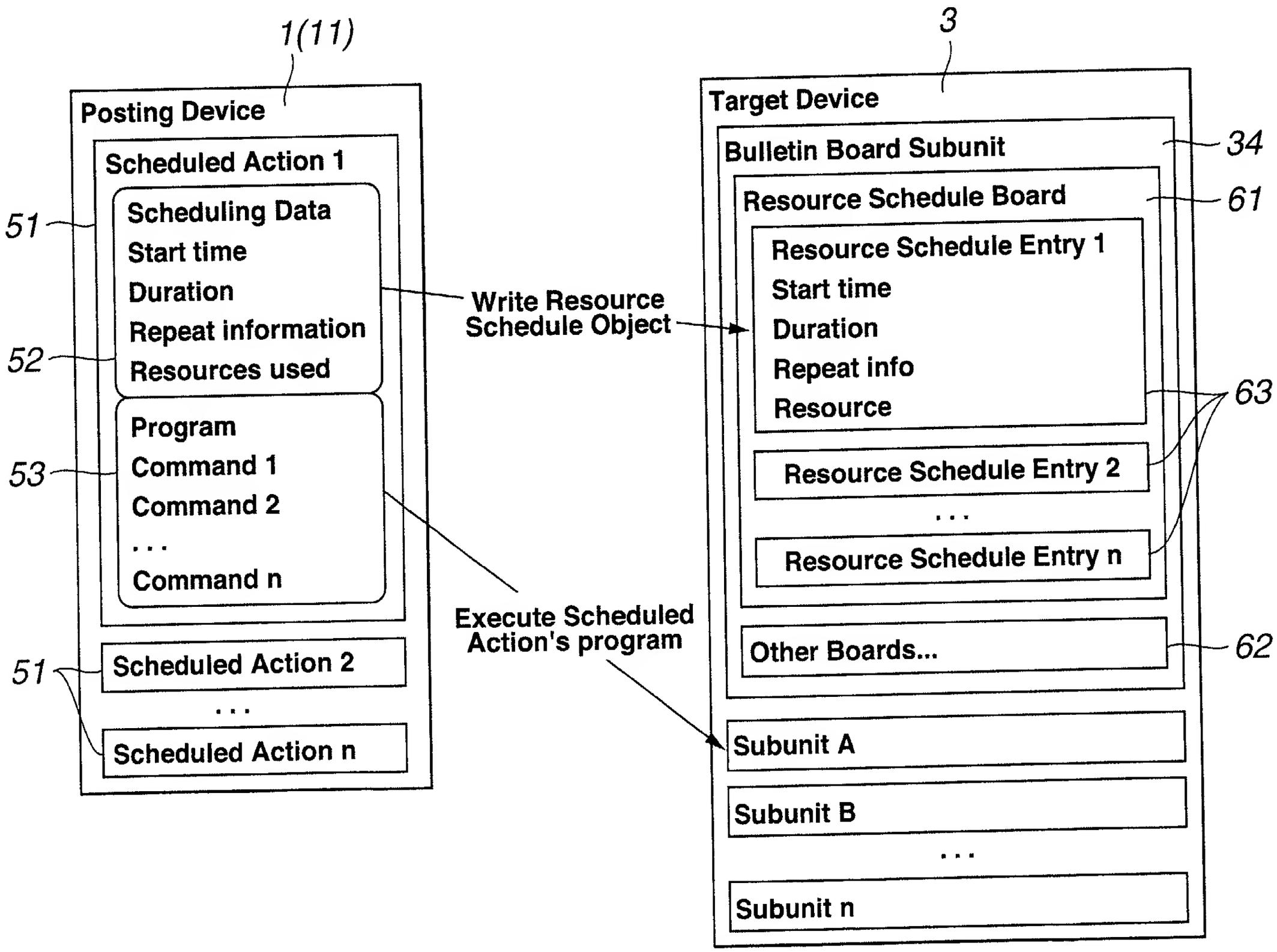
1(11)
Posting Device
Scheduled Action 1
51
Scheduling Data
Start time
Duration
Repeat information
52
Resources used
Program
53
Command 1
Command 2
...
Command n
Scheduled Action 2
51
...
Scheduled Action n
Write Resource Schedule Object
Execute Scheduled Action's program
3
Target Device
Bulletin Board Subunit
34
Resource Schedule Board
61
Resource Schedule Entry 1
Start time
Duration
Repeat info
Resource
63
Resource Schedule Entry 2
...
Resource Schedule Entry n
Other Boards...
62
Subunit A
Subunit B
...
Subunit n

FIG.3

descriptor_length
list_type
attributes
size_of_list_specific_information
list_specific_informaiton
Write_Enabled
non_info_block_fields_length
board_type
object_list_maximum_size
object_entries_maximum_number
object_entry_maximum_size
board_type_dependent_info_length
board_type_dependent_info
optional blocks for future expansion
number_of_entries(n)
object_entry
descriptor_length
entry_type
attributes
object_ID
posting_device_GUID
record_ID
size_of_entry_specific_information
Resource Schedule Entry
. . .
object_entry[n-1]
descriptor_length
entry_type
attributes
object_ID
posting_device_GUID
record_ID
size_of_entry_specific_information
Resource Schedule Entry

FIG.4

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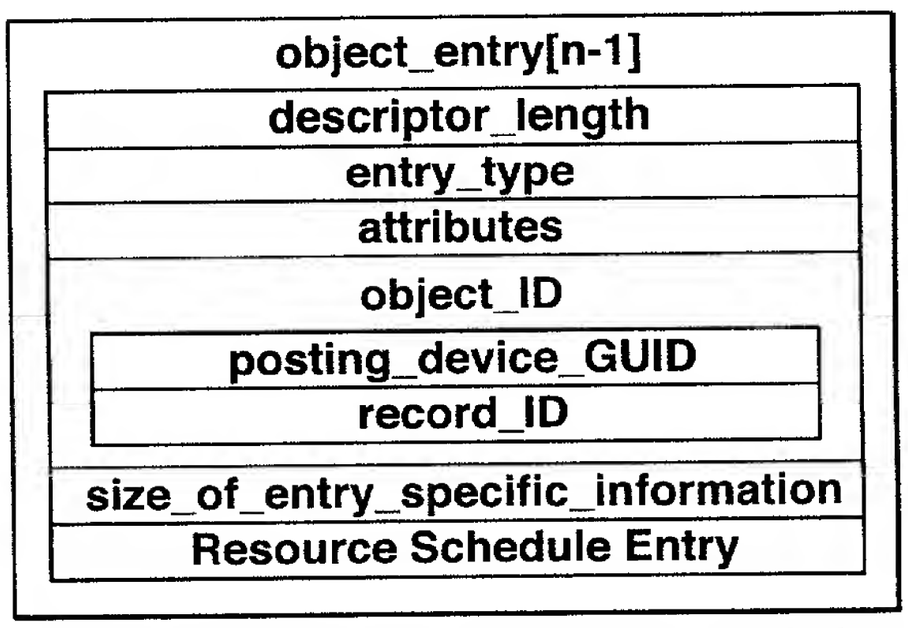
Address_offset	Contents
00_{16}	non_info_block_fields_length
01_{16}	
02_{16}	board_type
03_{16}	object_list_maximum_size
04_{16}	
05_{16}	object_entries_maximum_number
06_{16}	
07_{16}	object_entry_maximum_size
08_{16}	
09_{16}	board_type_dependent_information_length
$0A_{16}$	
$0B_{16}$	board_type_dependent_information
$0C_{16}$	
$0D_{16}$	
:	optional info blocks for future expansion
:	
:	

FIG.5

Value	Board type
00_{16}	Reserved
01_{16}	Resource Schedule Board
02_{16}-FF_{16}	Reserved for future specification

FIG.6



Resource Schedule Entry high level view

FIG.7

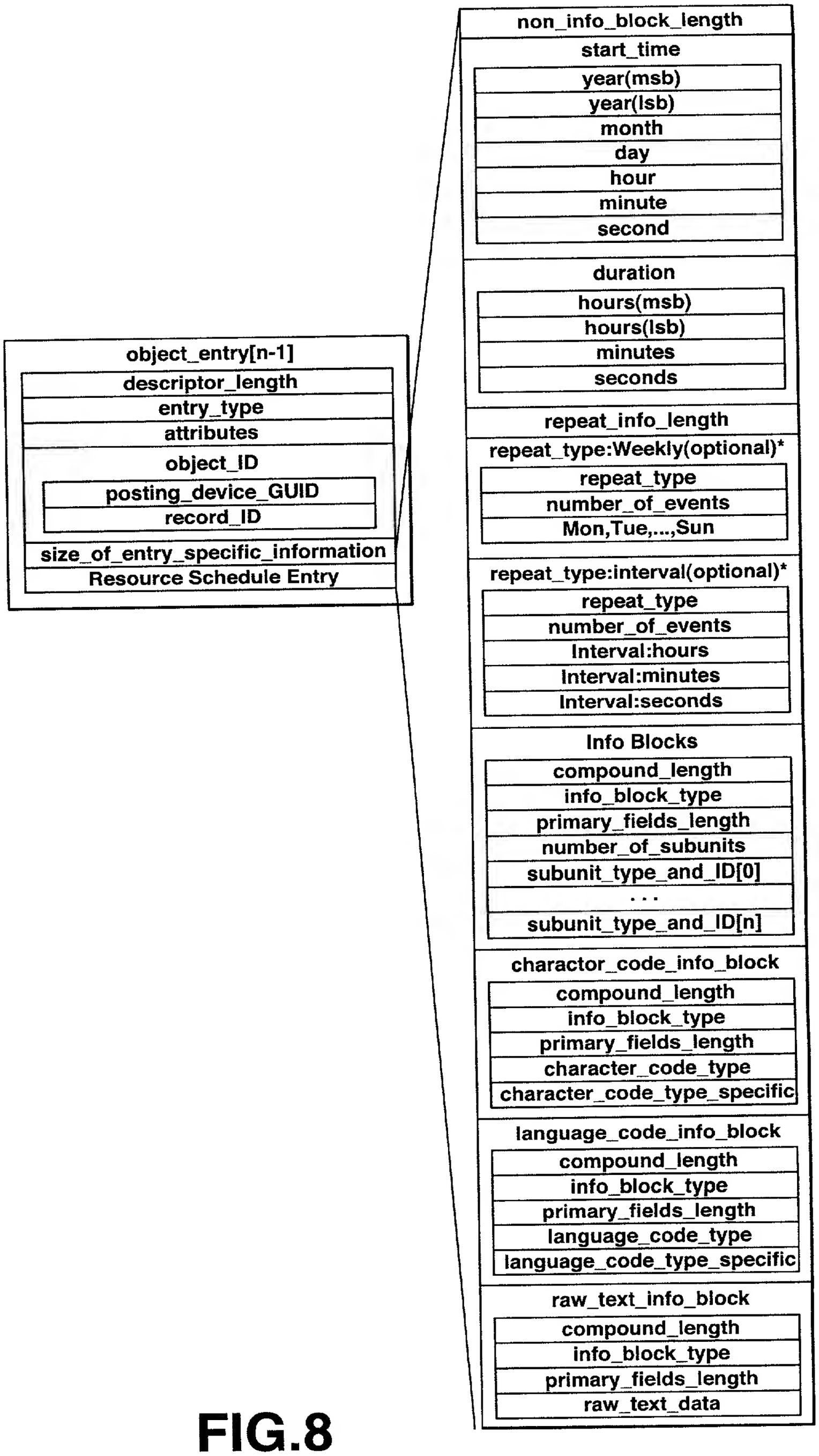

object_entry[n-1]
descriptor_length
entry_type
attributes
object_ID
posting_device_GUID
record_ID
size_of_entry_specific_information
Resource Schedule Entry
non_info_block_length
start_time
year(msb)
year(lsb)
month
day
hour
minute
second
duration
hours(msb)
hours(lsb)
minutes
seconds
repeat_info_length
repeat_type:Weekly(optional)*
repeat_type
number_of_events
Mon,Tue,...,Sun
repeat_type:interval(optional)*
repeat_type
number_of_events
Interval:hours
Interval:minutes
Interval:seconds
Info Blocks
compound_length
info_block_type
primary_fields_length
number_of_subunits
subunit_type_and_ID[0]
. . .
subunit_type_and_ID[n]
charactor_code_info_block
compound_length
info_block_type
primary_fields_length
character_code_type
character_code_type_specific
language_code_info_block
compound_length
info_block_type
primary_fields_length
language_code_type
language_code_type_specific
raw_text_info_block
compound_length
info_block_type
primary_fields_length
raw_text_data

FIG.8

Address_offset	Contents
00_{16}	year(msb)
01_{16}	year(lsb)
02_{16}	month
03_{16}	day
04_{16}	hour
05_{16}	minute
06_{16}	second

FIG.9

Address_offset	Contents	
00_{16}	Reserved(4 bits)	hours(msb)
01_{16}	hours(lsb)	
02_{16}	minutes	
03_{16}	seconds	

FIG.10

Values	definition
00_{16}	Weekly schedule
01_{16}-$0F_{16}$	reserved
10_{16}	Interval schedule
$0F_{16}$-FF_{16}	reserved

FIG.11

	msb							lsb
address_offset	contents							
$0E_{16}$	repeat_type							
$0F_{16}$	number_of_events							
10_{16}	Sunday	Monday	Tuesday	Wed-nesday	Thurs-day	Friday	Saturday	Reserved

FIG.12

address_offset	contents	
$0E_{16}$	repeat_type	
$0F_{16}$	number_of_events	
10_{16}	Reserved(4 bits)	Interval:hours(msb)
11_{16}	interval:hours(lsb)	
12_{16}	interval:minutes	
13_{16}	interval:seconds	

FIG.13

address_offset	contents
00_{16}	compound_length
01_{16}	
02_{16}	info_block_type
03_{16}	
04_{16}	primary_fields_length
05_{16}	
06_{16}	number_of_subunits
07_{16}	subunit_type_and_ID[0]
:	:

FIG.14

Copyright Sony Corporation

character_code_info_block	
Adress_offset	Contents
$00\ 00_{16}$	compound_length
$00\ 01_{16}$	
$00\ 02_{16}$	info_block_type=$00\ 08_{16}$ (character_code_info_block)
$00\ 03_{16}$	
$00\ 04_{16}$	primary_fields_length
$00\ 05_{16}$	
$00\ 06_{16}$	character_code_type
$00\ 07_{16}$	character_code_type_specific
⋮	
⋮	

FIG.15

language_code_info_block	
Adress_offset	Contents
$00\ 00_{16}$	compound_length
$00\ 01_{16}$	
$00\ 02_{16}$	info_block_type=$00\ 09_{16}$ (language_code_info_block)
$00\ 03_{16}$	
$00\ 04_{16}$	primary_fields_length
$00\ 05_{16}$	
$00\ 06_{16}$	language_code_type
$00\ 07_{16}$	language_code_type_specific
⋮	
⋮	

FIG.16

raw_text_info_block	
Adress_offset	Contents
00 00_{16}	compound_length
00 01_{16}	
00 02_{16}	info_block_type=00 $0A_{16}$ (raw_text_info_block)
00 03_{16}	
00 04_{16}	primary_fields_length
00 05_{16}	
00 06_{16}	raw_text_data
:	
:	

FIG.17

raw_text_data
CHANNEL
PROGRAM TITLE (PROGRAM)
CONTROL INFORMATION (REPLAY, RECORDING, STOP, ETC.)
REMARKS (PAY PER VIEW)
PROVIDER
PRELIMINARILY RESERVED

FIG.18

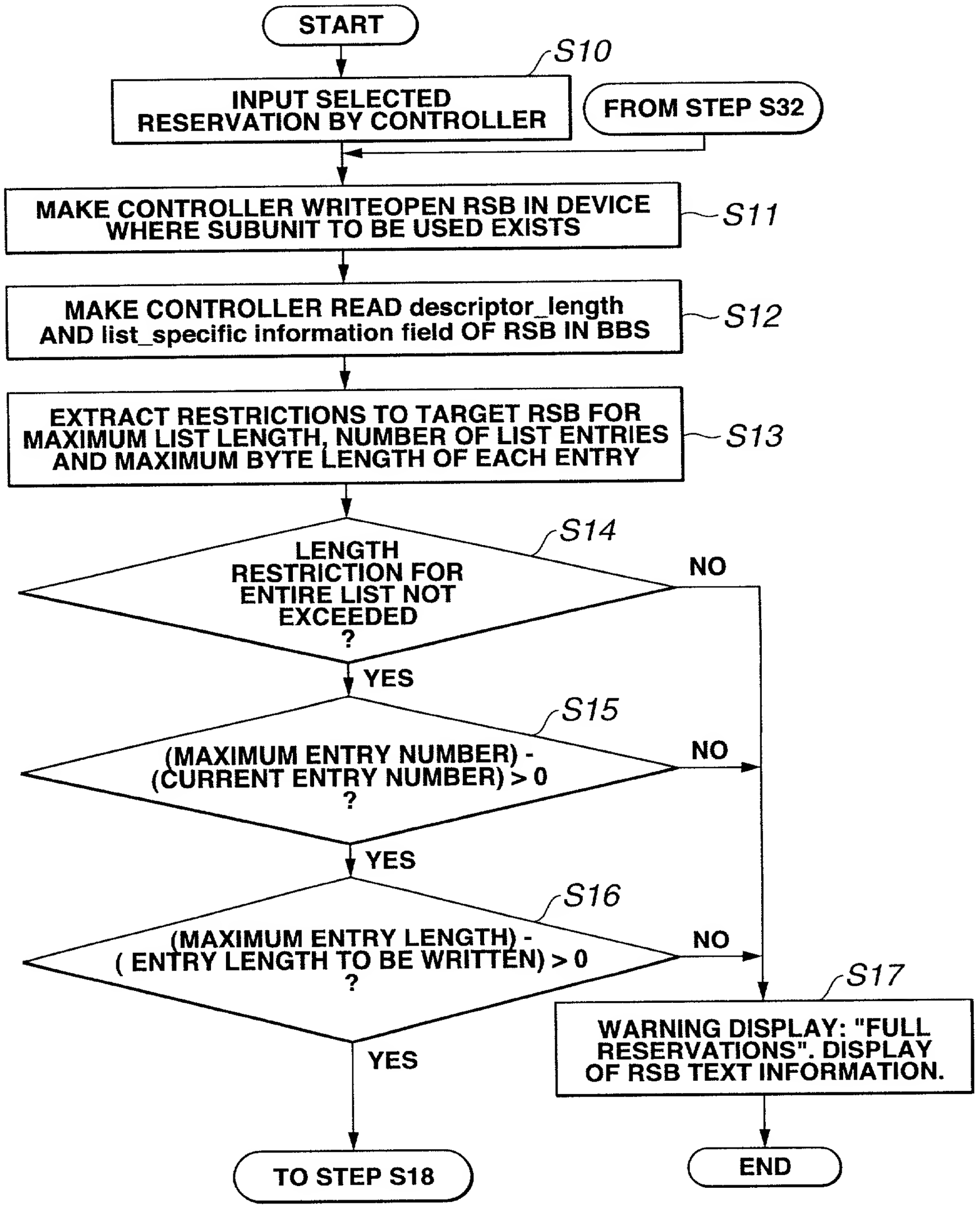

START
S10
INPUT SELECTED RESERVATION BY CONTROLLER
FROM STEP S32
MAKE CONTROLLER WRITEOPEN RSB IN DEVICE WHERE SUBUNIT TO BE USED EXISTS
S11
MAKE CONTROLLER READ descriptor_length AND list_specific information field OF RSB IN BBS
S12
EXTRACT RESTRICTIONS TO TARGET RSB FOR MAXIMUM LIST LENGTH, NUMBER OF LIST ENTRIES AND MAXIMUM BYTE LENGTH OF EACH ENTRY
S13
S14
LENGTH RESTRICTION FOR ENTIRE LIST NOT EXCEEDED ?
NO
YES
S15
(MAXIMUM ENTRY NUMBER) - (CURRENT ENTRY NUMBER) > 0 ?
NO
YES
S16
(MAXIMUM ENTRY LENGTH) - (ENTRY LENGTH TO BE WRITTEN) > 0 ?
NO
YES
S17
WARNING DISPLAY: "FULL RESERVATIONS". DISPLAY OF RSB TEXT INFORMATION.
TO STEP S18
END

FIG.19

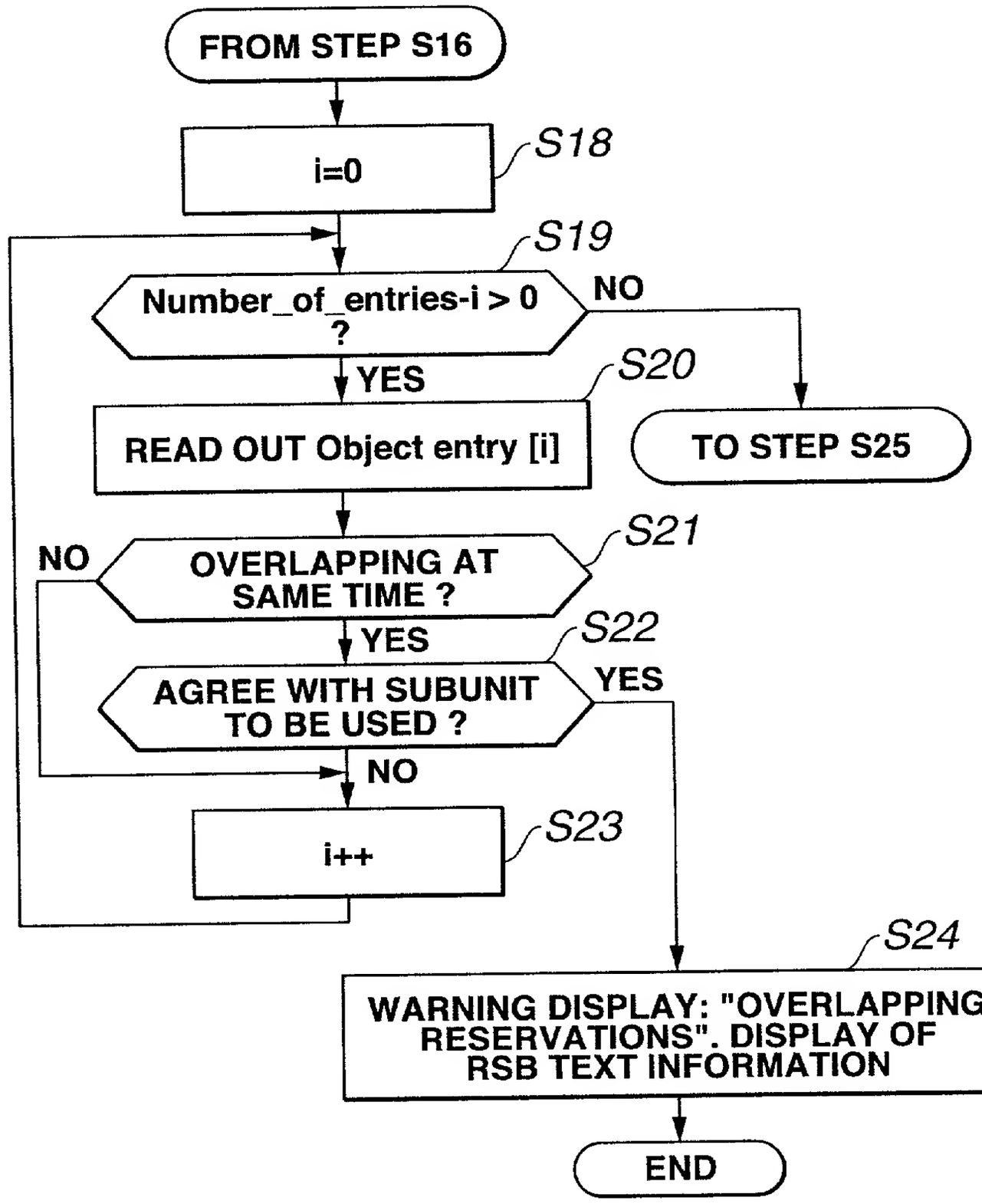

FROM STEP S16
i=0
S18
S19
Number_of_entries-i > 0 ?
NO
YES
S20
READ OUT Object entry [i]
TO STEP S25
S21
NO
OVERLAPPING AT SAME TIME ?
YES
S22
AGREE WITH SUBUNIT TO BE USED ?
YES
NO
S23
i++
S24
WARNING DISPLAY: "OVERLAPPING RESERVATIONS". DISPLAY OF RSB TEXT INFORMATION
END

FIG.20

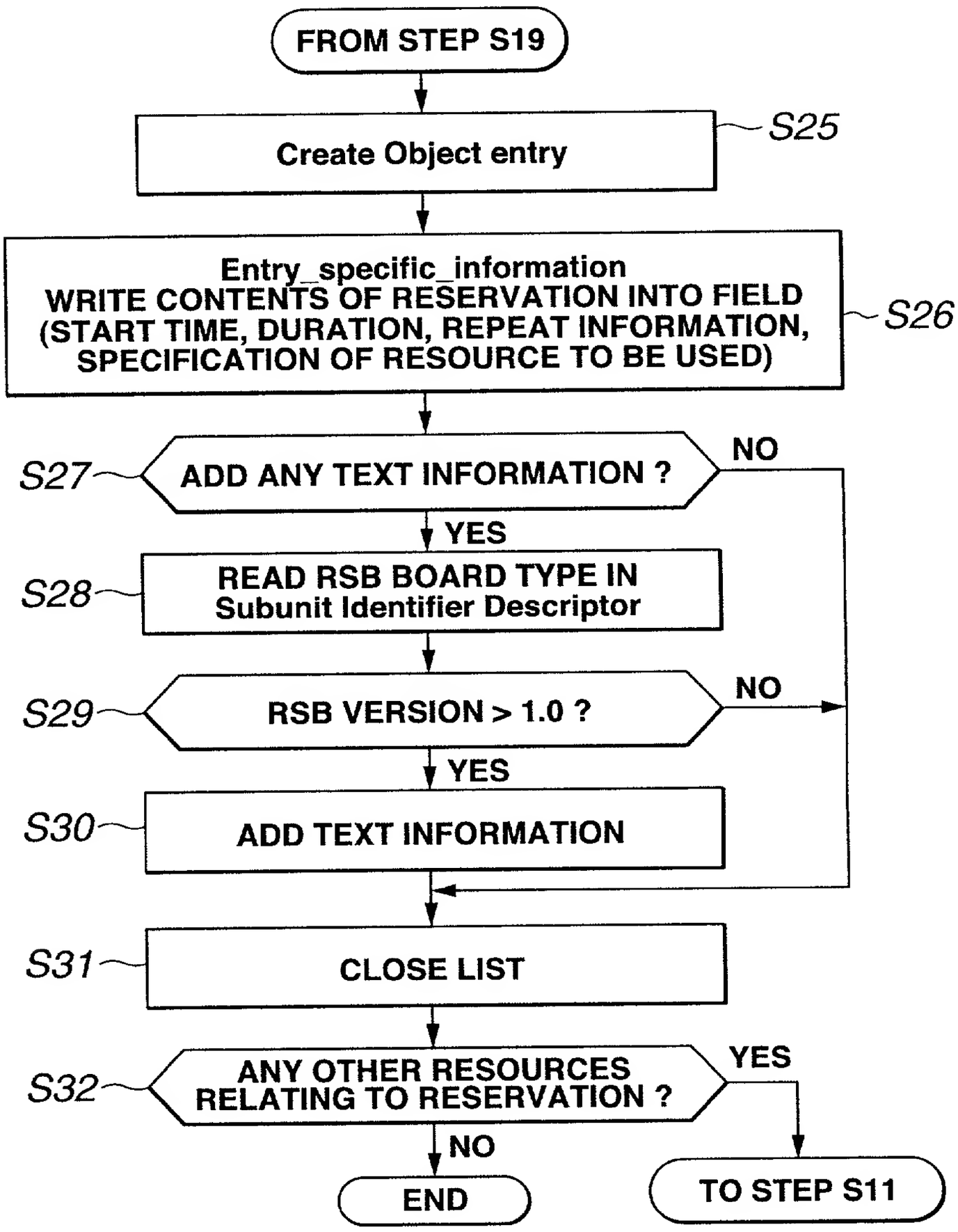

FROM STEP S19
Create Object entry
S25
Entry_specific_information
WRITE CONTENTS OF RESERVATION INTO FIELD
(START TIME, DURATION, REPEAT INFORMATION,
SPECIFICATION OF RESOURCE TO BE USED)
S26
S27
ADD ANY TEXT INFORMATION ?
NO
YES
S28
READ RSB BOARD TYPE IN
Subunit Identifier Descriptor
S29
RSB VERSION > 1.0 ?
NO
YES
S30
ADD TEXT INFORMATION
S31
CLOSE LIST
S32
ANY OTHER RESOURCES
RELATING TO RESERVATION ?
YES
NO
END
TO STEP S11

FIG.21

opcode	OPEN DESCRIPTOR
operand 0	descriptor_type=10_{16}
operand 1	List ID:00_{16}
operand 2	List ID:01_{16}
operand 3	subfunction WRITE OPEN 03_{16}
operand 4	reserved 00_{16}

FIG.22

	msb							lsb
opcode	READ DESCRIPTOR (09_{16})							
operand 0	descriptor identifier							
operand 1	:							
:	:							
:	read_result_status							
:	reserved : 00_{16}							
:	data_length							
:	address							

FIG.23

	msb							lsb
opcode	CREATE DESCRIPTOR (00_{16})							
operand 0	result							
operand 1	subfunction_1							
operand 2	reserved							
operand 3	subfunction_1_specification							
:								
:								

FIG.24

values of subfunction_1	meaning
00_{16}	create a new descriptor
01_{16}	create a new object and its child list
all other values	reserved for future specification

FIG.25

subfunction_1_specification for subfunction_1=01_{16}								
	msb							lsb
operand 3	descriptor_identifier_where							
⋮								
⋮								
⋮	descriptor_identifier_what_1							
⋮								
⋮								
⋮	descriptor_identifier_what_2							
⋮								
⋮								

FIG.26

descriptor_type of descriptor_identifier_ where	descriptor_type of descriptor_identifier_ what_1	descriptor_type of descriptor_identifier_ what 2	meaning
20_{16}	22_{16}	11_{16}	Create an object and its child list. create the new object and place it in the location specified by where, the entry_type is specified by what_1. Also create the new list as the child of the new object. The list_type is specified by what_2.
all other values			reserved for future specification

FIG.27

opcode	WRITE DESCRIPTOR (OA_{16})
operand 0	descriptor identifier
:	subfunction:partial_replace(50_{16})
:	group_tag:immediate(00_{16})
:	replacement_data_length
:	address
:	original_data_length
:	replacement_data

FIG.28

descriptor_length
generation_ID
size_of_list_ID
size_of_object_ID
size_of_object_position
number_of_root_object_lists(n)
root_object_list_id_0
. . .
root_object_list_id_n-1
subunit_dependent_information_length
subunit_dependent_information
non_info_block_fields_length
bulletin_board_subunit_version
number_of_supported_board_types(n)
supported_board_type_specific_info_length[0]
supported_board_type_specific_info[0]
supported_board_type
supported_board_type_version
implementation_profile_ID
supported_board_type_dependent_info_length
supported_board_type_dependent_info
. . .
supported_board_type_specific_info_lengh[n-1]
supported_board_type_specific_info[n-1]
supported_board_type
supported_board_type_version
implementation_profile_ID
supported_board_type_dependent_info_length
supported_board_type_dependent_info
optional blocks for future expansion
manufacturer_dependent_length
manufacturer_dependent_information

FIG.29

Value	List definition
1001_{16}	Resource Schedule List
$1002–10FF_{16}$	reserved

FIG.30

Address_offset	Contents
00_{16}	supported_board_type
01_{16}	supported_board_type_version
02_{16}	implementation_profile_ID
03_{16}	supported_board_type_dependent_information_length
04_{16}	
05_{16}	supported_board_type_dependent_information
:	
:	

FIG.31

opcode	OPEN DESCRIPTOR
operand 0	descriptor_type=10_{16}
operand 1	List ID:00_{16}
operand 2	List ID:01_{16}
operand 3	subfunction CLOSE 00_{16}
operand 4	reserved 00_{16}

FIG.32

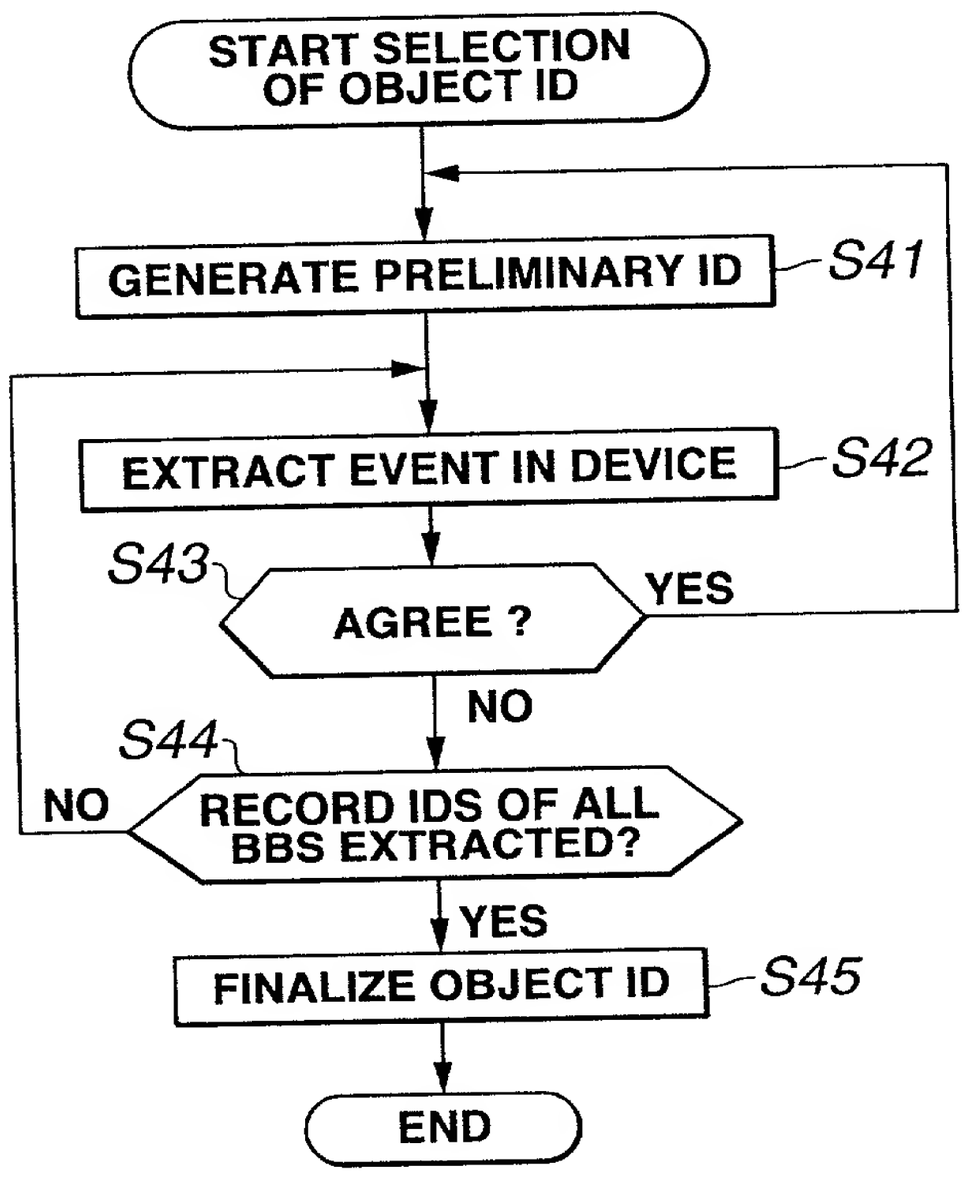


FIG.33

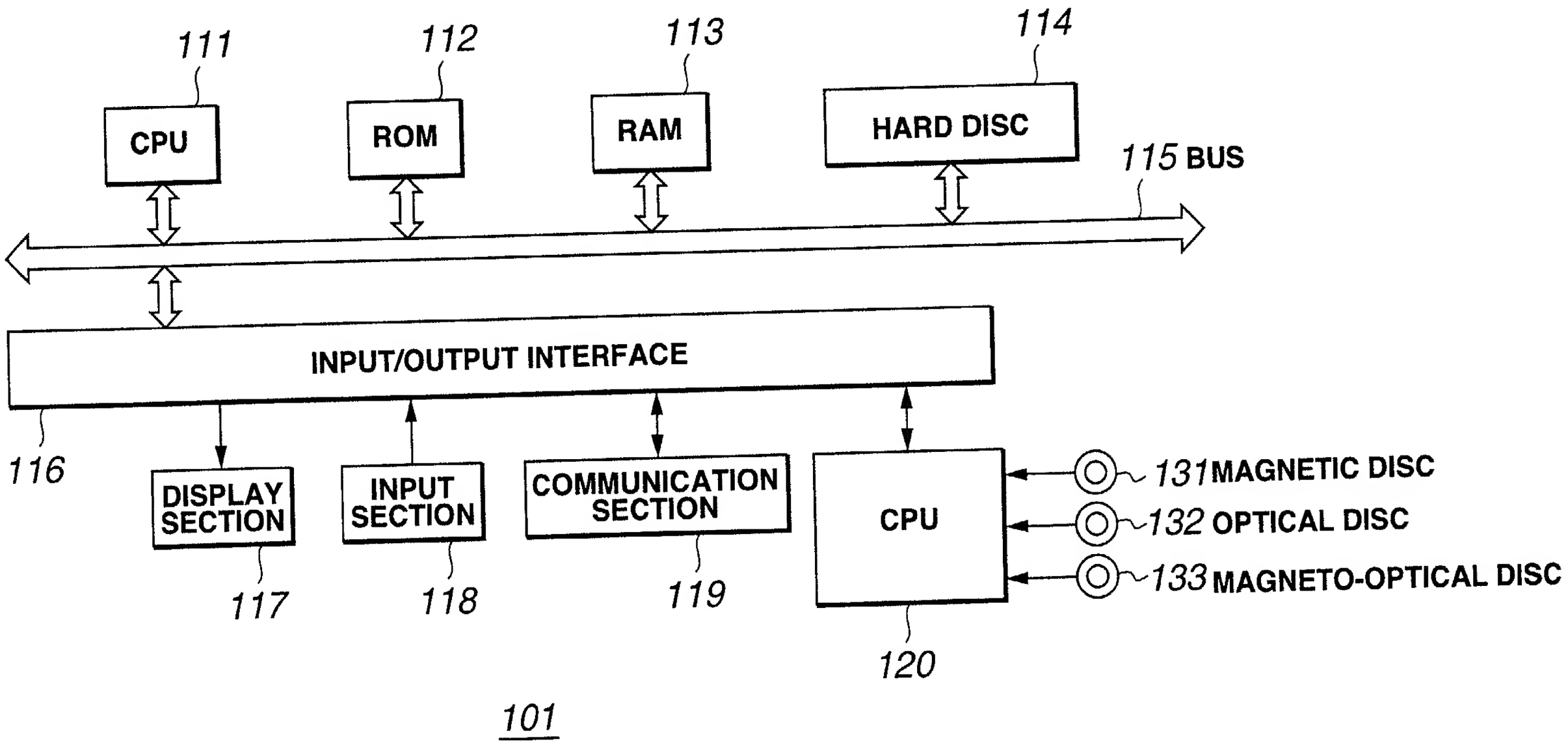

111
CPU
112
ROM
113
RAM
114
HARD DISC
115 BUS
INPUT/OUTPUT INTERFACE
116
DISPLAY SECTION
117
INPUT SECTION
118
COMMUNICATION SECTION
119
CPU
120
131 MAGNETIC DISC
132 OPTICAL DISC
133 MAGNETO-OPTICAL DISC
101

FIG.34